REMARKS

Claims 4-15 and 17-32 are pending in the present application, of which claims 29, 30, 31, and 32 are independent claims. Claims 4, 5, 11, 12, 13, 14, 17, 25, 26, and 29-32 have been amended for clarification. No new matter has been added by these amendments. Entry of the amendments made herein and consideration of these remarks is respectfully requested.

With respect to claims 29, 32, the term "system model" was indicated as being interpreted as "a problem," because it was said that there was no explicit definition in the specification for "system model." Applicant has amended claims 13, 14, 25, 26, and 29-32 to change "system model" to "function model," which is explicitly used in the specification. (see, e.g., the function model of FIG. 3 of the present application).

101 Rejections - Preemption

Claims 4-15 and 17-32 have been rejected under 35 USC 101 because, according to the Office Action (OA), "Preemption exists since the claims can read on any type of problem and any problem can be reformatted into a natural language format." (*OA*, p. 3)

Citing *Gottschalk v. Benson*, 409 U.S. 63, 71-72 (1972), the OA states:

> ... one may not patent every "substantial practical application" of an idea, law of nature or natural phenomena because such a patent "in practical effect would be a patent on the [idea, law of nature or natural phenomena] itself.

In *Benson* the "idea" was a formula for converting BCD numerals to pure binary numerals. And the full excerpt from the portion of *Benson* cited in the Office Action is as follows:

> The mathematical formula involved here has no substantial practical application except in connection with a digital computer, which means that, if the judgment below is affirmed, the patent would wholly preempt the mathematical formula and, in practical effect, would be a patent of the algorithm itself."
>
> *Benson*, 409 U.S. at 71-72 (emphasis added)

Ultimately, even a claim containing a mathematical formula may be patentable, as long is it is not the mathematical formula itself that is sought to be patented, as stated in *Diehr*:

> We recognize, of course, that, when a claim recites a mathematical formula (or scientific principle or phenomenon of nature), an inquiry must be made into whether the claim is seeking patent protection for that formula in the abstract.
>
> *Diehr*, 450 U.S. at 191

This required inquiry creates a heavy burden on the Examiner to justify a rejection under 35 USC 101 based on preemption, as clearly indicated in the MPEP:

> If USPTO personnel determine that the claimed invention preempts a 35 U.S.C. 101 judicial exception, they must identify the abstraction, law of nature, or natural phenomenon and explain why the claim covers every substantial practical application thereof.
>
> MPEP 2106 IV.C.3 (emphasis added)

Like the Supreme Court, the Examiner should:

> ... not be unmindful of the Committee Reports accompanying the 1952 Act which inform us that Congress intended statutory subject matter to "include anything under the sun that is made by man." S.Rep. No.1979, 82d Cong., 2d Sess., 5 (1952); H.R.Rep. No.1923, 82d Cong., 2d Sess., 6 (1952).
>
> *Diehr*, 450 U.S. at 191

In the present case, the Examiner has not satisfied its burden of (1) identifying the abstraction, law of nature, or natural phenomenon; or (2) explaining why the claim covers every substantial practical application thereof. The OA stated that "the claims can read on any type of problem and any problem can be reformulated into a natural language format." But in this statement there is no identification of an abstraction (mathematical formula), law of nature or natural phenomenon for any claim. It follows that since there has not been an identification of an abstraction (mathematical formula), law of nature or natural phenomenon for any claim, there also has been no explaining why the claim covers every substantial practical application thereof. Thus, the Examiner has not met his

burden of establishing a prima facia case of preemption under 35 USC 101. Accordingly, the Applicant cannot form a proper response based on the information provided in the Office Action.

For example, the Examiner has not identified an abstraction, law of nature or natural phenomenon in claim 29, which reads:

> 29. A method of obtaining solution suggestions for problems, the method implemented in a computer system having at least one processor and data storage medium, said method comprising:
> analyzing a function model, including identifying a problem to be solved and generating a machine representation of a problem statement representing the problem;
> reformulating the machine representation of the problem statement into a natural language or Boolean query; and
> accessing at least one knowledge base having problem solutions stored therein, and automatically obtaining a set of solution suggestions from the at least one knowledge base responsive to the query.

In the above claim, the Applicant is not attempting to patent an abstraction, law of nature or natural phenomenon itself. In fact, Applicant contends that the claim does not even include an abstraction (mathematical formula), law of nature or natural phenomenon – let alone an attempt to patent one. The Examiner's statement that "the claims read on any type of problem and any problem can be reformatted into a natural language format" does not appear to address the claim as a whole. Rather, the Examiner has focused on an aspect of the claim, without regard to the rest of the claim elements, and drawn an improper conclusion. The claim is directed to a method of "obtaining solution suggestions," – not strictly for reformatting a problem into a natural language query. The claim for a computer-based method for obtaining solution suggestions is not a claim for an abstraction (mathematical formula), law of nature or natural phenomenon. In fact, the OA does not address such a method (or system), focusing rather on selected pieces of the claims as a basis for the rejection. Regardless of whether or not the claim could have broad applicability, it does not preclude others from practicing an abstract idea

(mathematical formula), law of nature or natural phenomenon – which is really the thrust of a preemption rejection under 35 USC 101.

In reality, the Applicant does not seek to patent an abstraction, law of nature, or natural phenomenon. Instead, the Applicant seeks patent protection for a computer system and computer implemented process of obtaining solution suggestions from a function model, where a query is a reformulated problem statement determined taken from the function model, so the query is generated from a computerized function model. Therefore, a function model must exist for a problem statement to be generated, from which a machine representation can be generated, which is then reformulated into a query used to search a knowledge base to obtain solution suggestions. What is claimed goes far beyond the mere formatting of a problem into a natural language format.

In summary, the claims by no means recite an abstraction (mathematical formula), law of nature, or natural phenomenon, as required to establish a preemption rejection under 35 USC 101. And patenting of the claims would not preclude others from use of any mathematical formula, abstraction, law of nature, or natural phenomenon. And, the Examiner has not satisfied its burden of (1) <u>identifying</u> the abstraction, law of nature, or natural phenomenon; and (2) <u>explaining</u> why the claim covers every substantial practical application thereof.

Denying the opportunity for patent protection on the stated grounds would frustrate Congress' desire to have patentable subject matter "include anything under the sun that is made by man," particularly since Applicant has not claimed, and the Examiner has not identified, any claimed abstraction, law of nature, or natural phenomenon. In short, to reject claims 4-15 and 17-32 on the grounds of preemption would be an impermissible extension of the Supreme Court's holdings in *Diehr* and *Benson*, and an impermissible narrowing of the *Patent Act of 1952*.

Accordingly, withdrawal of the rejections under 35 USC 101 to claims 4-15 and 17-32 is requested.

Obviousness Rejection

Part 6 of the OA entitled "Obviousness Rejection of Claims" is unclear to Applicant, and Applicant is unsure how to respond to it, or if a response to this paragraph is required. A test for obviousness is typically done through application of 35 USC 103 in connection with prior art, but this section of the statute is not cited in Part 6.

Rather, 35 USC 101 is cited – but with no explanation why. A set of conclusions appear to have been drawn – but they are completely unsupported with any facts. A rejection should only arise from a good faith, well reasoned application of facts and law – but that is missing in this paragraph. If this section is truly making a rejection of some sort, Applicant requests further clarification, such as how each claim, as a factual matter, "represents in concept a problem statement;" how a problem statement in the context of the present invention "is a mathematical algorithm;" and how a mathematical algorithm "is of consequence abstract and non statutory under 35 USC 101." While the applicant contends that the claimed invention does not include a mathematical formula or algorithm, even if it did, the Supreme Court in *Diehr* recognized that a claim having a mathematical formula can be patentable, so long as the claim was not claiming the mathematical formula in the abstract. (see *Diehr*, 450 U.S. at 191)

If a response is required, Applicant could not form a proper response based on the information presented in the Office Action.

103 Rejections

Claims 4-15 and 17-32 have been rejected under 35 USC 103(a) as being unpatentable over Pustejovsky at al (US Pat. Pub. 2002/0120651 ("Pustejovsky1"). US Pat. Pub. 2001/0037328 to Pustejovsky ("Pustejovsky2") has also been variously cited.

Applicant's remarks with respect to these references and the prior rejections under 35 USC 102 in its response dated March 17, 2008 apply here and are reasserted.

Applicant takes issue with the statement that "Tech Optimizer, User Guide, by Invention Machine, Version 4.0 © 1995-2002 is an alternative prior art to that of Pustejovsky and will be used when and if the prior art of Pustejovsky no longer reads on the instant invention." (see *OA*, p. 4, Part 8) It would seem inappropriate to forecast a

prior art rejection of all claims without the benefit of specifically written claims to consider, since the claims could be further amended during prosecution. How can it be predetermined that claims not yet presented would be rejected with such certainty?

Claims 4, 5, 11, 12, 13, 14

The Examiner interpreted the phrase "configured to" as being of the family of "adapted to" so applied MPEP 2111.04. More particularly, the Examiner has interpreted the term "configured to" to mean "nothing more than a 'view of' and subsequent following statements are of no consequence." The Applicant disagrees with this interpretation. The Applicant contends that in each claim, the text following the "configured to" phrase adds further limitations and, in fact, provides claim differentiation over the respective claims from which claims 4, 5, 11, 12, 13, 14 depend. In that regard, the text following the phrase "configured to" in each of claims 4, 5, 11, 12, 13, 14 is material to patentability.

Nevertheless, Applicant has amended claims 4, 5, 11, 12, 13, 14, without prejudice, to eliminate the phrase "configured to."

No other rejections are offered against claims 4, 5, 11, 12, 13, 14. Therefore, withdrawal of these rejections is requested.

Claims 6, 18; 7, 19; 8, 20; 9, 21; 10, 22; 23; 12, 24; 15, 27

The rejections put forth in the OA are substantially similar to those put forth in the prior OA of Nov. 19, 2007, so that Applicant's remarks in its response of March 17, 2008 equally apply here and are reasserted. In the "Response to Arguments" section of the OA, an Examiner's Response was not explicitly given with respect to claims 6, 18; 7, 19; 8, 20; 9, 21; 10, 22; 23; 12, 24; and 15, 27.

Claim 17

Claim 17 has been amended to correct a minor typographical error. Claim 17 depends from independent claim 32, and adds "wherein reformulating the machine representation of the problem into a natural query includes translating functional

relationships in the machine representation of the problem statement into semantic relationships."

The OA cited Pustejovsky2 Abstract and FIG. 1 as making obvious claim 17. While Pustejovsky2 does indicate processing a _received query_ to identify semantic content, claim 17 requires significantly more than the foregoing. For instance, Pustejovsky2 does not at all disclose a "problem statement" nor a "machine representation of a problem statement." Therefore, Pustejovsky2 does not teach or make obvious translating functional relationships in the machine representation of the problem statement in semantic relationships, as required by this claim.

Claim 25

Claim 25 depends from independent claim 32, and adds that "identifying the problem to be solved includes analyzing functional relationships between key elements of the function model; and reformulating the machine representation of the problem statement into the natural language query includes translating the functional relationships into the natural language query." The OA cited Pustejovsky1 Abstract and FIG. 1 and Pustejovsky2 Abstract and FIG. 1 as making obvious claim 25.

In particular, the OA indicated that "indentifying semantic content" in Pustejovsky2 (Abstract and FIG. 1) teaches "identifying the problem to be solved includes analyzing functional relationships between key elements of the function model." However, since these portions of Pustejovsky2 do not disclose function models and identifying a problem to be solved, Pustejovsky2 does not make obvious this portion of claim 25. Additionally, one skilled in the art would not find "identifying semantic content" as being analogous to "identifying the problem to be solved includes analyzing functional relationships between key elements of the function model," as in claim 25.

Additionally, the OA indicated that "selecting a term on the electronic page for which a query is to be performed" in Pustejovsky1 (Abstract and FIG. 1) teaches "reformulating the machine representation of the problem statement into the natural language query includes translating the functional relationships into the natural language query." However, selecting a term on an electronic page is not nearly the same as

"reformulating the machine representation of the problem statement into the natural language query includes translating the functional relationships into the natural language query," so Pustejovsky1 does not make obvious this portion of claim 25. Additionally, one skilled in the art would not find "selecting a term on the electronic page for which a query is to be performed" as being analogous to "reformulating the machine representation of the problem statement into the natural language query includes translating the functional relationships into the natural language query," as in claim 25.

Claim 26

Claim 26 depends from independent claim 32, and has been amended herein. Claim 14 discussed above has been similarly amended. Support for the amendment to these claims can be found, for example, in the present application at page 8, para. 2 and FIG. 7. In particular, claim 26 adds that "identifying the problem to be solved includes performing a root cause analysis to generate a directed graph having one or more nodes, wherein each node represents a problem statement and has a node edge that represents a cause-effect relationship; and reformulating the machine representation of the problem statement into the natural language query includes translating the nodes into the natural language query." The OA cited Pustejovsky1 and Pustejovsky2 as making obvious claim 26.

In particular, the OA indicated that "root cause analysis using stem is synonymous with the function of applicant's node," citing Pustejovsky1 (para. 0030 and FIG. 2) and Pustejovsky2 (paras. 0029, 0030), teaches "identifying the problem to be solved includes performing a root cause analysis of the function model that establishes one or more nodes." Pustejovsky1 para. 0030 is reproduced below:

> [0030] According to the present invention, a technique including a method and device for operating an electronic book is provided. More particularly, the present invention provides a method and system for natural language processing of information in an electronic book.

Applicant sees no teaching in this text of "identifying the problem to be solved includes performing a root cause analysis to generate a directed graph having one or more nodes,

wherein each node represents a problem statement and has a node edge that represents a cause-effect relationship," as in amended claim 26, nor does FIG. 2 of the same reference appear to add anything relevant. Regarding the cited portions of Pustejovsky2, which disclose functions of an interpreter 220, the interpreter 220 appears to perform syntactic and semantic processing, including processing of a word stem from a stemmer 214, which "uses a stem dictionary, which is a master list of stems." (Pustejovsky2, para. 0028). A list typically is not interpreted by those skilled in the art as having nodes, as in claim 26, nor does Pustejovsky2 indicate that its master list of stems has nodes. Additionally, the semantic and syntactic processing in the cited portion of Pustejovsky2 does not disclose "root cause analysis." Therefore, Applicant suggests that the cited portions of Pustejovsky1 and Pustejovsky2 do not make obvious "identifying the problem to be solved includes performing a root cause analysis to generate a directed graph having one or more nodes, wherein each node represents a problem statement and has a node edge that represents a cause-effect relationship," as in claim 26. In fact, the OA never explicitly described how Pustejovsky1 and Pustejovsky2 teach these aspects of claim 26.

Additionally, the OA similarly indicated with regard to the second element of claim 26, "reformulating the machine representation of the problem statement into the natural language query includes translating the nodes into the natural language query," that Pustejovsky1 (para. 0030 and FIG. 2) and Pustejovsky2 (paras. 0029, 0030) teach "root cause analysis using stem is synonymous with the function of applicant's nodes," making obvious this element of claim 26. However, as indicated above, the cited portions of Pustejovsky1 and Pustejovsky2 do not teach root cause analysis nor does the stem list of Pustejovsky2 include nodes. More to the point, these sections of Pustejovsky1 and Pustejovsky2 do not teach "reformulating the machine representation of the problem statement," nor do they teach "translating the nodes into the natural language query." In fact, the OA never described how Pustejovsky1 and Pustejovsky2 teach these aspects of claim 26.

Therefore, Pustejovsky1 and Pustejovsky2 do not make obvious claim 26.

Claim 28

Claim 28 depends from independent claim 29, and adds "presenting the set of solution suggestions via an output device." For reasons put forth with respect to claim 29, claim 28 is also not made obvious by Pustejovsky2 (FIG. 1).

Claims 29, 32

The Office Action indicated that independent claim 29 was taught by Pustejovsky1 (Abstract, para. 0018, and FIG. 1) and Pustejovsky2 (Abstract, FIG. 1). As indicated above, Applicant has amended claim 29 to change "system model" to "function model," for clarification.

In Applicant's response dated March 17, 2008 Applicant provided explanation distinguishing claim 29 over Pustejovsky1. Those remarks equally apply here, and are reasserted.

For instance, despite the assertion in the OA, Pustejovsky1 does not teach analyzing a function model in its para. 0018. Pustejovsky1's para. 0018 is reproduced below:

> [0018] This invention generally relates to the field of information management. More particularly, the present invention provides a method and system for natural language processing of information in an electronic book. Merely by way of example, the invention has been applied to an electronic book. It would be recognized that the invention can also be applied to other sources of text information such as electronic file folders, and the like.

There is no discussion here of "analyzing a function model, including identifying a problem to be solved and generating a machine representation of a problem statement representing the problem," as in claim 29.

Similarly, Pustejovsky2 does not teach "reformulating the machine representation of the problem statement into a natural language or Boolean query" in its Abstract. Pustejovsky2's Abstract is reproduced below:

> A query is received via a computer user interface. The query is processed to identify the semantic content contained in the query. An information store is accessed to obtain related categories of information based on the semantic content of the query. The information is presented over the computer user interface, thereby providing the user with context relevant information. The invention increases navigability of a large information store by eliminating the indiscriminate display of all information relating to the keywords identified in the query.

There is no discussion here of "reformulating the machine representation of the problem statement into a natural language or Boolean query," as in claim 29.

Similarly, Pustejovsky2 does not teach "accessing at least one knowledge base having problem solutions stored therein, and automatically obtaining a set of solution suggestions from the at least one knowledge base responsive to the query" in its Abstract and FIG. 1. The Office Action states that "it would have been obvious ... to interpret a Boolean query as being an ordinary implementation of a computer process since computer processes are made up of Boolean statements ... just the way a computer operates." However, this analysis is silent with respect to "accessing at least one knowledge base having problem solutions stored therein," and is also silent with respect to "automatically obtaining a set of solution suggestions from the at least one knowledge base responsive to the query," as in claim 29.

Therefore, for various reasons the Applicant believes that the cited portions of Pustejovsky1 and Pustejovsky2 do not make claim 29 obvious. Allowance of claim 29 is requested.

Claim 32 was rejected based on the same grounds as claim 29. Therefore, for reasons put forth above with respect to claim 29, the Applicant believes that the cited portions of Pustejovsky1 and Pustejovsky2 do not make claim 32 obvious. Allowance of claim 32 is requested.

Claims 30, 31

With respect to claim 30, which is an independent <u>system</u> claim, the "Response to Arguments" section of the OA, page 11, indicated the following:

> The claim steps of claim 30 are limited by the term "configured to" which is not a positive imitation and does not require that the subsequent limitations are implemented.

Since this is a <u>system</u> claim, there are no "steps" indicated in claim 30. Also, on one hand the statement says claim 30 is "limited by the term 'configured to'," yet on the other hand says it is not "a positive limitation." Applicant disagrees with the assertion made in the OA.

The same assertion was made on page 12 of the OA with respect to independent system claim 31, and Applicant's response is the same as that provided above for claim 30.

Nevertheless, Applicant has amended claims 30 and 31, without prejudice, to eliminate the phrase "configured to." Also, as indicated above, Applicant has amended claims 30, 31 to change "system model" to "function model," for clarification.

The Office Action also indicated that independent claims 30, 31 were taught by Pustejovsky2 (FIG. 1). Applicant disagrees. Pustejovsky2's FIG. 1 is as follows:
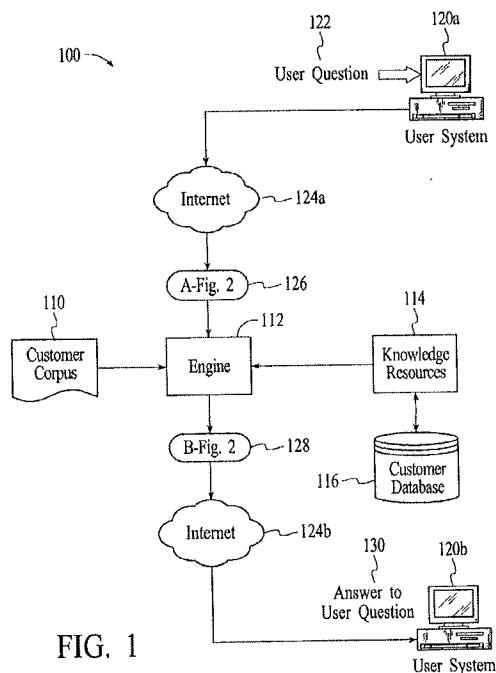
FIG. 1

For instance, Pustejovsky2's FIG. 1 does not teach "a user input device that enables user interaction with at least a portion of a function model to enable identification of a problem to be solved, represented as a problem statement." No explicit portion of Pustejovsky2's FIG. 1 has been cited as teaching this element of this claim. Applicant cannot form a proper response in view of the lack of specificity of the teaching of this element in view thereof.

Pustejovsky2's FIG. 1 does not teach "a problem analysis tool that generates a machine representation of the problem statement." No explicit portion of Pustejovsky2's FIG. 1 has been cited as teaching this element of this claim. Applicant cannot form a proper response in view of the lack of specificity of the teaching of this element in view thereof.

Pustejovsky2's FIG. 1 does not teach "a query formatter that reformulates the machine representation of the problem statement into a natural language or Boolean query." No explicit portion of Pustejovsky2's FIG. 1 has been cited as teaching this element of this claim. Applicant cannot form a proper response in view of the lack of specificity of the teaching of this element in view thereof.

Pustejovsky2's FIG. 1 does not teach "at least one knowledge base comprising: at least one database comprising problem solutions; and a knowledge search tool that automatically searches the at least one database for a set of solution suggestions responsive to the query; and an output device that presents the set of solution suggestions." No explicit portion of Pustejovsky2's FIG. 1 has been cited as teaching this element of this claim. Applicant cannot form a proper response in view of the lack of specificity of the teaching of this element in view thereof.

Therefore, for various reasons the Applicant believes that the cited portions of Pustejovsky2 do not make claim 30 obvious. Allowance of claim 30 is requested.

Claim 31 was rejected based on the same grounds as claim 30. Therefore, for reasons put forth above with respect to claim 30, the Applicant believes that the cited

portions of Pustejovsky1 do not make claim 31 obvious. Allowance of claim 31 is requested.

For various reasons independent claim 29 and its dependent claim 28; independent claim 30; independent claim 31 and its dependent claims 4-15; and independent claim 32 and its dependent claims 17-27 are not made obvious in view of Pustejovsky1 and Pustejovsky2, whether taken alone or in combination.

Closing Remarks

It is submitted that all claims are in condition for allowance, and such allowance is respectfully requested. If prosecution of the application can be expedited by a telephone conference, the Examiner is invited to call the undersigned at the number given below.

Authorization is hereby given to charge Deposit Account No. 501798 for any fees which may be due or to credit any overpayment.

Respectfully submitted,

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